

The Mining And Metallurgical Journal

VOL. XXI, No. 10

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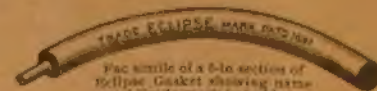
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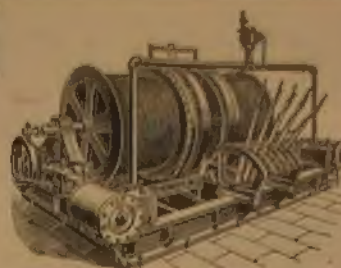
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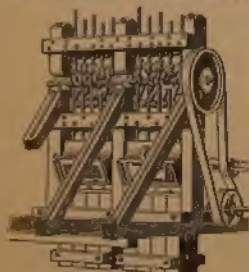
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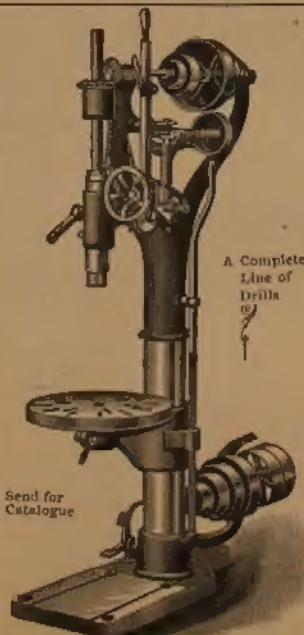
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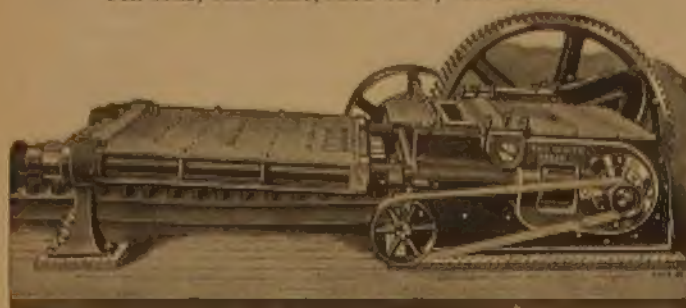
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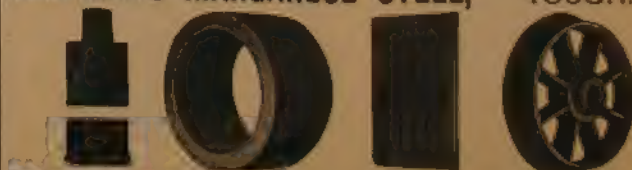
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HYDRAULIC MINING RESTRICTED.

The Anti-Debris Association of the Sacramento Valley having brought suit against certain hydraulic miners, the executive committee of the California Miners' Association held a special meeting on the 25th ult., President J. H. Neff in the chair. Many San Francisco members were present, and among others were John McMurray of Trinity county, Harold T. Power of Placer, A. H. Ten Broeck of El Dorado, Major McBride of Nevada, A. Ekman of Butte and C. C. Derby of Santa Clara. James Spaulding, President of the Red Dog Company, and W. F. Englebright, Secretary, were present.

During a long and spirited discussion it was decided to take up the fight in behalf of all the hydraulic miners and to raise money to carry on the fight to the end. A special committee was appointed to secure counsel.

Robert T. Devlin, manager and attorney of the nearly defunct Anti-Debris Association, has brought suit in Sutter county to restrain two Nevada county hydraulic mines from operating further, although these companies have built private dams below their workings to impound their tailings according to plans approved by the Federal engineers composing the California Debris Commission, secured the commission's permit to mine after inspection of the dams and have otherwise obeyed the requirements of the Caminetti law.

This law of Congress places the regulation of hydraulic mining on the watersheds of the navigable streams of this State wholly in the hands of these Federal engineers. It is not alleged that the Caminetti law has been infringed. The suits ignore this law and assume that the courts may ignore it at their discretion and stop any hydraulic mining regardless of the Debris Commission's license; that a State court may review the commission's acts. This would nullify the Caminetti law and again practically stop hydraulic mining.

One suit has been brought in Sutter county

in the name of that county enjoining the Kate Hays hydraulic mine of Nevada county and another against the Red Dog mine on Greenhorn creek near You Bet, Nevada county. The streams on which these mines are drain into the Bear and the Bear into the Feather. The Red Dog Company began mining behind their dam under a permit, according to the Caminetti law in January of last year. Their approved log dam is now thirty feet high, it having been raised as the reservoir filled with tailings. The debris that has gone into the Bear has been that suspended in the water pouring over the dam.

The suit simply alleges that the defendants have damaged two bridges across the Bear river near Wheatland, one across the Feather at Marysville, and also a hospital, all through filling up the river. The suit is simply to test the constitutionality of the Caminetti law. On the 5th the Superior Court of Sutter county temporarily enjoined the Red Dog mine in the face of the Caminetti law.

The point to be settled is, can a Judge of the Superior Court squash and overrule a Federal law which has been complied with under the approval of the Federal engineers acting under that law?

EXPORT DUTY ON NICKEL.

There are few conditions or times in any country where an export duty on minerals is advisable or wise public policy. If the country imposing the duty is the only producer in the world of that mineral, an export duty would only limit its use, or in time of war when extra revenue was required, and the conditions of the market would stand an increase in price, the imposition of an export duty under these conditions may be excusable. History proves that the Spanish colonial policy of export duty on minerals, had the effect of crushing the industry out of existence. Before the Canadian Pacific Railway was built in the Lake Superior district, in the early eighties, the price of nickel, which was largely obtained from New Caledonia, a French penal settlement, near Australia, ranged about \$1 a pound, but the discovery of large bodies of pyrrhotite, holding a workable percentage of nickel and a little copper, on the line of the Canadian Pacific Railway, near Sudbury, Ontario, competition with foreign producers soon reduced the price to fifty cents a pound, and more recently to twenty-five cents a pound.

Among the Canadian companies formed to work nickel deposits was that known as the Canadian Copper Co., of Madoc, Ont., who, by having central of the officials of the Toronto Land office, obtained the inside track in obtaining large areas of nickel land, by having them reserved from sale, and thereby got the benefit of the discovery of other prospectors who applied for these lands, there being no law at that time granting the right to the prospector to make his location on the ground. But trouble resulted in the division of the spoils of the prospectors' rights, and lawsuits were common between S. J. Ritchie and those who furnished the capital to make the company a success. To retaliate, the same Ritchie (whose chief virtue is a large capacity for the glory of self) lost his case in the courts of justice, now opens an agitation to have an export duty placed on Canadian nickel and ruin the Canadian trade. As the Canadian product in nickel does not control the market, the result will be to kill the Canadian nickel mining and matte smelting

industry for a time, or until removed, and to stimulate nickel mining in other sections.

In Ten Mile district, near Leadville, Colo., on the Wintergreen group of ten claims, a large deposit of pyrrhotite, holding a low percentage of nickel and gold is found, which might be operated if nickel advanced in price.

Nickel has been found and mined in past years in Pennsylvania, at Lancaster Gap, and more recently in Nevada, Oregon and Washington State, from which places future supplies of the metal may be obtained, should the price be increased so as to warrant the development of new districts.

As the nickel refiners of the United States and Europe are not dependent on Canadian nickel matte for their supplies, the imposition of an export duty on the product of the mines and smelters of Sudbury, Ont., will retard Canadian industry, and aid exploration and mining in United States for ores of nickel and increase foreign nickel production and imports to the detriment of Canadian mining.

MINING AND TRANSPORTATION.

The bulk and weight of freights furnished to railroads by the mining industries makes transportation an important interest to them. The quantities of coal, coke and iron ore transported are immense, and ores containing the precious metals in large quantities are shipped considerable distances for treatment. Copper reduced from ores supplies a large tonnage, and supplies for mining camps and reduction works constitute a very considerable volume of railroad traffic.

Not more than two or three industries contribute as much to the business of railroads as that of mining and its incidentals. Hence the cost of transportation is a subject of vital interest to all engaged in the various branches of the mining industry. It has been a rule more or less tenaciously enforced of charging "all the traffic will bear," in its application to mining products and supplies. From the enforcement of this rule the mining industries have probably suffered more than any others. It has affected the profits of the mine owners, and the wages of mining employees. Men engaged in all branches of the mining industry are deeply interested in the railroad problem, and in a solution that will cheapen the cost of transportation.

The interference by state and national legislatures with pooling contracts and agreements of traffic associations to make and maintain high rates, and the destructive effect of competition upon earnings that will pay such a profit as will satisfy the owners of railroads, have led to the plan of consolidation or systematization for the purpose of reducing cost of operation. No doubt great systems can be operated at less expense proportionately than a single road. This plan has not been adopted for the purpose of benefiting the patrons but the owners of roads. Already the plan has been so far carried into effect that nearly all the railroads in the nation are operated in about fifteen or eighteen systems.

The plan of consolidation meets the approval of the body of railroad men and of the people. It assures more expeditious and efficient service, and were the motive to benefit the people in the matter of rates, as well as to assure just rewards to capital invested, there would be hearty co-operation on all sides, and the problem would be treated as practically solved. But upon this point there is a conflict between the railroad owners and the patrons of the roads. Whenever consol-

idation has been effected there has been neglect to introduce all the economies in operation that are practicable, and which should be adopted. One of the items which is immensely expensive is the inordinate salaries paid to the principal railroad officials. Many of these offices could be discontinued, and all the salaries of the high officials could be cut down without impairing the efficiency of the service. It is stated as a statistical fact that there are five or six hundred railroad presidents who aggregately receive salaries to the amount of \$11,000,000. There is really no practical need for but one president of each system, and were they each paid \$25,000 per annum, the cost would be less than \$500,000. To what extent there might be a saving by reducing salaries of other officials and abolishing superfluous offices is a point upon which there has not been sufficient investigation upon which to found a reliable statement.

It is incontrovertible that railroads generally are very much over capitalized, and to pay income on excessive bonds and stocks is another and chief cause why rates for transportation are above what is reasonable. How to eliminate such capital is the most difficult feature of the railroad problem. Some way should be devised for accomplishing it without positive injustice, and the subject will doubtless be agitated until it is accomplished in a peaceable manner. American methods afford the means of righting wrongs without resorting to force and violence.

The constant efforts of railroad officials to arrange affairs so as to avoid the difficulties that confront them, will aid in bringing about more satisfactory conditions, but they will not be acceptable unless the masses, as well as the railroad owners, are recipients of the benefits that will result from the introduction of economies in railway operation.

MINES AND RAILWAY TRAFFIC.

The history of the progressive development of a mining district in the western States is an interesting and instructive social problem. Our liberal mining laws encourage prospecting, and offer a premium to the industrious and venturesome, by giving the discoverer the possessory right to it, as long as he continues to work the claim. Therein lies the success of opening up a new district, for, as development proceeds with energy and intelligence, new discoveries are sure to be the result. The first, and often difficult and dangerous pack trail of the prospector, is followed by a wagon and stage road, and as the work advances, the discovery of rich ore, or that of a quality which requires to be smelted, necessitates the introduction of a cheaper means of obtaining supplies and hauling ore to market than the slow operation of teaming in wagons. The next operation is the narrow gauge tramroad for animals, or the cheapest mechanical power obtainable for operating it, or by hauling with heavy traction wagons. As the business of the small railroad increases, the construction of a standard gauge line of railway is made easy, and soon becomes a matter of economy to establish.

It is a notable fact that the railway company traffic managers, as a class, are nice gentlemen who recline in a rich city office, with carpeted surroundings, and wait for business to come to them. The idea of a railway company sending a traffic manager with a competent mining engineer, to report on the traffic possibilities to and from new min-

ing camps, is a measure unknown outside of Colorado, for in other states the railway management leaves the sphere of opening up new avenues of trade to the companies or persons operating mines.

The urgent requirements of many mining districts, located on each side of railway lines for cheap transportation facilities, as feeders for freight for the line, is never considered or advanced until the miners have demonstrated that a branch line will pay. This is a feature of railway traffic management that many railway lines can better undertake than to leave it to the miners, as the plant when not required in one district can be sent to another.

CORRESPONDENCE

ARIZONA.

CHLORIDE, Ariz., Aug. 9, 1899.

EDITOR JOURNAL:—More mining machinery is coming into the district than at any time during its previous history. Aside from the small steam hoisting works and the little horse whim for hoisting, the Merrimac mine has ordered a complete concentrating plant from Los Angeles which is now passing on its way and will soon arrive. Like all the other mines, the Merrimac is surfeited with ore both above and below, and something will have to be done to make room for the ore now coming out of the mine.

The Tennessee and Elkhart mills are both running at full capacity since the late rains furnished an abundant additional supply of water. The ore body in the Tennessee is said to be eighteen feet thick at its present depth of 375 feet.

The Payroll mine is getting in excellent shape for the extraction of ore from its big vein; and, although the ore is yet far above water level, is fairly high grade in character, and ruby silver is beginning to come in. The wagon road from the mine to the level plain is completed, and soon ore teams will be freighting the products of the mine to the depot of the new railroad to be forwarded to markets east and north. Colin Timmons, the manager, has a fine and very thoroughly equipped assay office in operation in connection with the mine, and is himself installed as assayer.

Robt. J. Ferguson & Son have resumed work on the Redemption mine and will sink 200 feet in the 70-foot tunnel, from which a shipment of ore was recently made. Salt Lake parties are negotiating for the purchase of this property.

Weaver gold district is wild with joy and excitement over the development of a strong stream of water in one of its prospect holes. The shaft was down 140 feet, and the water rose 40 feet so rapidly that the man at the bottom narrowly escaped drowning. The water is standing at that gauge yet, with no signs of its giving way, notwithstanding the district for three and four miles around is supplied with water from it. It has given the camp and district quite a run of prospectors, as heretofore water had to be brought in on the backs of burros or other pack animals from six to eight miles.

The Virginia mine, in the camp by the same name, is taking out and shipping some unusually high grade, free-milling gold quartz, and the Ramrod follows closely with almost as much and of as high grade. Now that water has been found many men who own claims are going in and developing them, and much

prospecting is being done in both directions from the Virginia. This gold belt is known to extend from Colorado river southeast to Union Pass, a point in that range of mountains fifteen miles south of here. Want of water has been its unredeeming feature, and now that this indispensable article to prospectors on the Colorado desert is more convenient and plentiful, that rich gold belt is suggestive of great possibilities yet undeveloped.

JACOB MITCHELL.

CALIFORNIA.

LOS ANGELES, CAL., July 25, '99.

EDITOR JOURNAL:—I note an article in your issue of the 15th inst., entitled, "The Future of the Stamp Mill," taken from T. A. Rickard's work entitled, "The Stamp Milling of Gold Ores," which seems to me to be calculated to discourage any from attempting to improve upon a method of reducing ores, which Mr. Rickard himself characterizes as the clumsy contrivance whose reverberations echo from Coolgardie to Colorado." The discouragement is not only for the inventor but also for the mine owner whose property is not quite rich enough to pay for the old method, but could and would prove lucrative by the adoption of something more modern and less expensive. It must be well known to Mr. Rickard that a great percentage of gold ore is refractory to a greater or less degree, and either cannot be worked profitably by plate amalgamation, or might be worked to a still greater profit by some other process, if intelligently used. As Mr. Rickard demands the intelligent operation of the stamp mill, so also, I demand equally intelligent management of the patent process and patent mill, and in a majority of cases, at least in Southern California, I feel confident that experiment will show a balance in favor of the latter.

This clinging to the stamp mill and discouragement of progressive methods in gold extraction, is on a par with the Chinese, which teaches that the grandson must not presume to surpass the wisdom of his grandfather, and that it is blasphemy to question the superiority of antiquity, a philosophy, alas, which is bearing its fruits today.

Singularly Mr. Rickard deprecates the conditions which he assists so effectually to bring about, and bemoans the luckless inventor and his half finished inventions, but does not seem to comprehend that it is such as he who are causing the means to be withheld whereby it would be possible to bring the means to a successful issue. In conclusion, I beg to say that the struggling inventor, though he has failed, has done more for humanity than the whole fraternity of mossbacks who have not brains enough to develop an idea, but have control of a few high-sounding words and smoothly-turned phrases, by the use of which they are enabled to down better men. I have not attempted, nor do I presume, to enter into an argument with Mr. Rickard, but simply wish to call the attention of mine owners to the possibilities for improvement on the methods in general use, and also to the possibility of making their mines pay a profit, if handled intelligently and by progressive methods.

Very respectfully yours,

B. I. TURMAN, 132 S. Broadway, L. A.

NOTE.—We venture to say that Mr. Rickard does not wish to discourage the invention of crushing machinery, to take the place of the stamp mill. And we believe he only had

reference to the many fraudulent propositions for quartz crushing, which are constantly being placed on the market "as better than a stamp mill." If a machine has merit, no one would try to down it, and it would withstand a test, which Mr. Rickard recommends should also be made before installing a stampmill.—
[ACTING EDITOR.]

Havilah Mines Active.

Havilah, the pioneer district of Kern county, after laying idle for thirty years, is again receiving attention from mining men and capitalists. The Warrington and Ophir mines, which are on the Mother Lode and were heavy gold producers in the early days, have been purchased by eastern companies and under the management of R. C. Shaw, are again in operation. \$40,000 has been expended in the last few months for new machinery, consisting of a ten-stamp mill at the Warrington, cyanide plants, steam hoists, pumps, etc. The mill at the Ophir has been in operation for several months past, but the Warrington mill was just started last week. Fifty men will be employed in the Warrington and about twenty-five in the Ophir, and Mr. Shaw has sufficient funds at his disposal to keep the property in operation whether anything is taken out of the mines or not. However, from present indications, there is no doubt but that a dividend will be paid in a short time. In fact, with seven feet of \$35 ore in the 600-foot level, it can hardly be otherwise providing that the ore holds out.

The New World, a patented mine on the mother lode, which has lain idle since the sixties, is also again in operation. A company known as the New World Mining Co., consisting of the following persons: R. T. Harris, Pres.; L. E. Porter, Secy and Treas., J. J. Seamans, Superintendent; Gus. Miller and Wm. McColough, was organized the 10th of last month and sufficient capital has been provided to put in the necessary machinery and commence operations. A large force of men are now at work taking out ore from a 20-foot vein. With the exception of the old Havilah, which has 100 feet of low-grade ore in the face, the New World contains the largest known body of ore in the district.

It is said that work will also commence on the Fairview group in a short time. These mines were heavy producers in the early days, and large results from the new operations are confidently expected.

The Bald Eagle, one of the best-paying mines in the district when Havilah was the county seat of Kern county, was opened up again this year and is paying its owners, J. J. Seamans and A. Robinson handsome returns.

What promises to be a paying proposition is an immense body of antimony discovered near Kern river and owned by Geo. Miller and L. E. Porter. The lead is very large and the ore exceedingly high grade. Chicago parties are now investigating the property with a view of purchasing it.

L. E. Porter, one of the best-known mining men in this part of the country, has established an assay office at Havilah and his services are in great demand.

Great interest is also being shown at the present time in the mines on Plute mountain. Some of the richest mines in the county are in this district, most of them being free milling, though some are of high-grade ore that is slightly refractory. I have a group of five mines leased this year, and at the present time am taking out rock from the Birdseye View, which prospects from \$50 to \$60 per

ton. The pay chute now being worked is 100 feet in length and 18 inches wide.

Twenty-five men are now at work in the Glen Olive mine. This mine paid its owners \$56,000 net last year, and has paid a neat dividend so far this year.

A large body of very rich rock was recently struck in the Fairview, owned by Griffith and Berris, and they are now receiving deserved returns for their pluck and energy.

There is still ample room here for both the prospector and capitalist, either of which will find that their time is not wasted by an investigation of the hidden wealth of this district.
R. E. GALLOWAY.

Vaughn, Cal., Aug. 5, 1899.

The New Coal Field.

GARLOCK, Kern Co., Cal., Aug. 5, 1899.

EDITOR JOURNAL:—Of course you shall have a complete description of the coal field which I discovered nearly four years ago, but which only now shows money in sight for reasons which would have to be explained at length. The three large veins, the little veins, the sulphur balls, the clays, keels, fossil leaves, the pitch of the veins, the grain of the coal in the veins—always at right-angles with the vein above or below—and the rim of the original basin in which the coal hardened from mud, pest, oil or wood—all these things are, to me, intensely interesting as I study them day after day and some day when I have more time and know more about it, I will try and write you an interesting article.



PECULIAR FORMATION IN COAL FIELDS AT GARLOCK.

At the present time, however, I want to bother you with a puzzle which has bothered me a long time. I mail you a little box containing a few pieces of coal. Now, if you will step to the window and hold one of these pieces to the sunlight and keep turning it until you get the proper angle, you will observe thousands of little rings from 1-32 to 1/16 of an inch in diameter, overlapping and crowding each other. They show only on the cross-grain or ends, at right angles with the true grain of the coal. When you first see them they may appear white and indistinct, but tip them a little further over and they will come out in all their brilliancy. They are not only a surprise and a wonder to every coal expert to whom I have shown or sent them, but as far as I can find out, they have never been seen in coal before. There were some spots in the old (first discovery) mine, but in the new mine, and in the vein of best coal—not the largest vein—they seem to be coming in more and more as the vein widens. You will note that the coal is very hard. In burning it pops like a pistol and rattles like broken dishes when it comes down.

If any coal expert who visits your office should chance to recognize them and give the reason for their existence and shape, I would be pleased to hear from him or yourself or to see the same in the JOURNAL. I have often attributed them to the original presence of oil, but suppose a more rational theory would be

they are minute globes or bubbles of gas in the original mud, and were flattened by pressure at the time the mud received its first end grain pressure.
F. H. HEALD.

COLORADO.

The Denver Engineering Works Company report several car loads of machinery already shipped to the two mills they are building for the Mountain Pride Gold Mining Co. and the Ault Wiborg Co., in the vicinity of Breckenridge, Colo. Both of these mills are well advanced in construction, and when finished will be the most modern type of concentrating mills in the state. The Mountain Pride Mill will be operated by steam power and the Ault-Wiborg by electric.

The Denver Engineering Works are now erecting at their works two pyritic smelting furnaces, for which they have recently received orders; a large traveling crane has been constructed especially for the purpose of putting these furnaces together before shipment, to insure that everything will go together properly. One of these furnaces will be erected in Leadville, Colo., and the other near Atlanta, Ga. The total shipment to Georgia, will comprise a fair-sized train load.

This company is also building a sampling plant, to be operated in conjunction with the Georgia smelter.

Ten car loads of 16" x 36" Denver crushing rolls have just been shipped to Cripple Creek, for the large mill now being built by the Economic Gold Extraction Co.

The demand for the Cammett concentrators built by this company has increased to such an extent that they have been obliged to enlarge their facilities for turning out these tables. Inquiries are received from all over the world. This company is making a specialty of these tables and are pushing them very rapidly into the market, where their success seems now well assured.

The three 150-h. p. double drum electric hoists which they are building for the British-American Corporation of Rosland, B. C., are now being put together at their Works, and will be set in operation and put under test previous to shipment.

The demand for the machinery turned out by the Company is now so large as to make it difficult to keep up with the work, and orders have accordingly been placed with several of the best machine tool companies for a new planer, drill press, boring machine and gear cutter, to cost approximately \$15,000.

LEWIS SEARING.

John Wigmore & Sons Co., of 117-123 S. Los Angeles street, Los Angeles, Cal., have just installed an excellent line of mining machinery, such as ore cars, ore buckets, hoisting machinery, gasoline engines, and in fact nearly everything necessary to the successful operation of a mine. Besides the above mentioned articles handled by this firm, they carry a full line of iron and steel, etc.

The favorite lubricant for all kinds of machinery, "Albany Lubricating Compound," is made in four regular numbers and one extra. Of these, Nos. 2 and 3 are especially well adapted for use in moderate and warm weather, and the manufacturers, Adam Cooks' Sons, 313 West Street, New York City, will be pleased to send samples and further particulars to engineers who wish to test the matter. The extra grade (No. X) is of extra hardness, and will lubricate journals with entire satisfaction, when no oil or other lubricant will work.

SEVERAL REPUBLIC MINES.

So much has been said of the wonderful Republic camp in the northern part of the state that we deem it interesting to say something of the different properties in detail. In the JOURNAL of August 1st there appeared a very interesting letter regarding the Jim Blaine and the Princess Maude properties. This issue we treat on the Morning Glory, Blacktail and Butte and Boston mines.

MORNING GLORY.

No gold discovery ever made in the northwest since the steamer Portland arrived from Alaska bringing the news of the gold finds in Klondike, has created the excitement that was caused by the strike on the Morning Glory mine at Republic early last December.

Up to that time the interest of mining men had been centered in the Republic mine and the neighboring properties, which extended north and south along that famous belt.

The discovery of a rich and extensive body of ore in the Morning Glory mine, therefore, marked an epoch in the history of the camp, and had the immediate effect of transferring a large part of the interest to the west side of the camp, in which the Morning Glory is situated.

Although but little development work had been done on the mine when



FACE OF TUNNEL, JIM BLAINE.

See our issue of August 1st, 1899.



MORNING GLORY TUNNEL.

the strike was made, subsequent operations have demonstrated beyond the possibility of a doubt the existence of a large body of ore running extremely high in gold, and the further fact that the values are maintained as increased depth is reached.

The story of the strike is of intense interest to all who invest money in mining shares. The Morning Glory was located something over a year ago by H. Eidlner a prospector, and in time passed into the control of other parties. There was little or no interest felt at the time in that portion of Republic Camp where the Morning Glory is situated, and now known as the west belt, and it was not until late in the fall of 1898 that the owners decided to organize a company and start work on the property. It was early in December that the newly-organized company sent a representative to the camp with instructions to commence development work at once. A number of open cuts along one of the ledges that traverse the property had been previously made for a distance of six hundred feet, and assays had been obtained running as high as \$40. The representative of the company as soon as he arrived in camp and had examined the property put a force of men at work sinking a shaft near the center of the mine. Almost from the first promising assays were obtained, and by the time the shaft reached a depth of ten feet there were eighteen inches of clean ore lying next to the footwall that gave the following assays: No. 1, \$31.42; No. 2, \$184.39; No. 3, \$69.45; No. 4, \$206.70. The latter assay was



BLACKTAIL TUNNEL

Two notable Tunnels in the great Republic Camp

the highest that had been obtained in the camp so near the surface, and that together with the splendid showing in the shaft, sent the camp wild with excitement. As soon as the news reached Spokane there was a lively demand for the stock, but so great was the confidence the holders of the stock had in the mine that comparatively few shares changed hands.

About four hundred feet further down the hill another shaft was started, and at a depth of eight feet six feet of ore was exposed at that depth, as the shaft was not so wide as the ledge. Assays ranging from \$1.65 to \$136.42 were obtained from the ore in this shaft. All the ore exposed up to that time and since is free milling and the quartz is not what might be called hard. Later on average samples taken from the upper shaft assayed exceeding \$600.

An experienced mine manager was engaged and placed in charge of the work. He immediately started the work of running a tunnel in the ledge, and it is the intention of the company to continue the tunnel until it shall have reached the upper shaft, when a depth of two hundred feet will have been obtained.

As the ores in all of the best developed properties in Republic Camp have materially increased in value as depth is reached, it is reasonable to believe that the Morning Glory will prove no exception, and that with the completion of the tunnel a very large body of high-grade ore will be encountered.

The ledge upon which the tunnel is being run is what is termed a north

east and southwest one. It is about five feet in width and has been traced and fully exposed for over fourteen hundred feet. At the point where the lower shaft was sunk a north and south ledge crosses the property. It is fully fifteen feet in width, and while not fully exposed, it promises to equal its companion ledge as a producer of high grade ore.

The ore in the latter ledge is of an entirely different character from the former, being concentrating ore pure and simple. Assays as high as \$159 have been obtained, but so little development has been done upon it that it is impossible to say what the entire body will average. These two ledges do not, however, constitute the entire possibilities of this remarkable mine. There is a third ledge on the property lying north of the original discovery, but its width and value are unknown at present, as the officers of the company have decided that for the time being at least they will concentrate their energies in the work that is already under way. This third ledge is believed, however, to be equally good as the others, as the croppings, which have several times been assayed, give good values. A drift that is being run from the tunnel will eventually tap this ledge at a considerable depth, and the value and extent of the ore bodies can then be definitely determined. Until that is accomplished it will not be possible to form anything like a correct estimate of its value or merits. The Morning



TUNNEL BUTTE AND BOSTON

Glory mine is situated about one and a half miles northwest of the town of Republic, and about an equal distance southwest of the famous Mountain Lion mine. It is to the west belt what the Republic mine is to the south end. The Morning Glory lies upon the side of a hill that is about five hundred feet above Granite Creek, and is admirably situated for development both by tunnel and shaft. Its situation is such that it can be operated for a long time without hoisting or pumping machinery, which will insure the work of development being carried on at a comparatively small expense. It lies within a few hundred yards of a good wagon road thus saving the expense of constructing one. The character of the ground in the vicinity of the Morning Glory is admirably adapted for the erection of a concentrator at a distance of less than one fourth of a mile from the mouth of the tunnel, and it would be entirely practicable to convey the ore from the mine to the mill by means of a tramway, which would, of course, minimize the cost of transportation over that distance.

The west side of the camp at Republic has come to be recognized as of equal value to the section that first attracted the attention of mining men, and in which the Republic mine is situated. Immense ledges traverse the properties located in the west belt and the rapid development of many of them is fast demonstrating that the ore bodies carry good values.

Without detracting in any manner from the value of surrounding property, it is an almost demonstrated fact that the Morning Glory mine occupies the central position in the west belt just as the Republic does in the south belt. It is the opinion of the most prominent mining men who have examined the Morning Glory that all it needs to make it a great mine is development, and that it is going forward as fast as the work can be pushed.

THE BLACKTAIL.

This mine looks as though it might be another Republic and when one sees the splendid masses of pay ore exposed in the workings of this property he must have renewed and unshaken confidence in the magnificent destiny of the Republic Camp.

The Blacktail was among the first locations made and is situated on the east side of the San Poil gulch. Just above it is the Lone Pine and Surprise on which also have been extensive bodies of pay ore found. There is little or no waste in the Blacktail ore and it looks very solid and compact. One seldom sees such a mass of clean ore.

The capital of the company operating the Blacktail is \$1,000,000, divided into 1,000,000 shares of \$1.00 each full paid and non-assessable.

The management is in thoroughly experienced hands, some of the best known mining men being connected with the company.

We copy the following from an opinion written by the famous expert, Mr. Bernard McDonald, regarding this property. "Within

six hundred feet of the south end line of the Lone Pine and two hundred feet of the north end line of the Blacktail claims I have counted the out crop of nine veins, five on the Lone Pine and four on the Blacktail and all within

ings on the cross vein most developed within the Blacktail and these gave an average value of \$28.00 from an average width of three and one-half feet of quartz. On the main vein, that is upon the one on which the claim was located, I took two samples which gave an average of \$22.85 from an average width of five and one half feet of quartz.

Eastern Canadian capital after subjecting the property to a rigid examination, have invested heavily until today they are one-third owners and it is not unlikely the control of this property, like that at the Republic, will pass into Canadian hands.

BUTTE AND BOSTON.

The accompanying illustration of the Butte and Boston in the Republic district shows the immense width of the pay chute in this property.

This claim, the second extension of the famous Republic was opened up in the spring of '98 but energetic and active development only commenced when the management passed into the hands of Mr. J. H. Wilmot who is known in the mining world as a successful operator.

Under the old management a short tunnel was started and a ledge seven feet in width uncovered. The ore, while not what is usually termed high grade, was sufficiently valuable to warrant development. A drift was run to the south along the ledge for thirty feet but the ore was of less value than where first encountered. This was abandoned and work on the north drift began. This was carried forward for a distance of over three hundred feet and a shaft was sunk to a depth of fifty feet from the bottom of which a crosscut was run to and across the ledge. Now came the change in management and the new management decided that the proper method to continue the development was by a cross tunnel. The wisdom of this course has been verified by striking the ledge where it was solid and contained good values. The cross tunnel is something over three hundred sixty feet in length and cuts the ledge at a vertical depth of two hundred twenty feet, but by the dip of the ledge the face of the tunnel is two hundred thirty feet from the surface at the point where cut by the tunnel. The pitch of the ledge is about sixty-five degrees.

The finding of this body of quartz has materially enhanced the value of the stock and has had a marked effect upon the properties adjacent thereto. That the veins of the Republic pass into the Jim Blaine and on out into the Butte and Boston has been conceded by all mining men who have examined the property. Of the mines now under development in the Republic Camp at the present time none have shown such a phenomenal body of ore for the amount of development.

Two very important points should be considered in connection with this property, one is the running of the Republic tunnel to tap the vein at the six hundred foot level. Should this tunnel upon completion expose the vein showing fair values to say nothing of what it



FACE OF DRIFT BLACKTAIL MINE.



BUTTE AND BOSTON TUNNEL BRACE.

an area measuring eight hundred feet in a north and south direction. Fortunately for the Blacktail all the veins dip towards the south so that the Blacktail will gain, rather than lose, by their downward extension."

"I took five average samples from the work-

does in the present workings the striking claims known to the public. The value of the property is appreciated in value by the mining community. The further it is from the surface the more valuable it is. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

THE MINING AND METALLURGICAL JOURNAL
ANALYSIS OF THE PROPERTY

MORE ABOUT MINE NEWS

ALASKA

It is stated that the United States government has purchased the property of the Alaska Mining Company. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

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ARIZONA.

The Crowned King Company near Pecos has been successful in its operations. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

Mr. J. M. L. has been successful in his operations. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

News from the mining industry is very encouraging. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

CALIFORNIA

AMADOR COUNTY

The shaft in the Pioneer mine at Pioneer is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner. The property is now being worked by the owner, who is a very experienced miner.

Cleveland O. parties represented by W. A. Cole have located the Sunny South mine in Pioneer district. Mr. Cole says that extensive development work will be prosecuted at once and will probably be ten stamp mills. The owners claim to have a large body of strongly sulphuretted quartz which also shows some free gold. Fifty feet north of the present shaft an air shaft is being put down.

CATALINAS COUNTY

It is reported that some very fine ore was struck this week in the 400-foot level of the Pioneer mine near San Andreas. At that point the ore is about 4 feet in width and shows some pieces of free gold and high grade sulphurets. The mine is kept running day and night and everything points to a prospective success.

A meeting of the Democrat Gold Mining Company was held on the 15th inst. The following officers were elected: President, D. J. Demarest; Vice President, L. E. Stucke; Secretary, L. E. Stucke; Treasurer, L. E. Stucke; and L. E. Stucke was elected president and L. Monte Verde secretary.

EL DORADO COUNTY

The Victoria mine at Pigeon Creek near Potosi has been closed down for good. After two years of operation, the mine had spent over a hundred thousand dollars and was not worth anything.

It was reported last week that another rich strike had been made in the Pioneer mine at Potosi. A large body of free gold was encountered and makes the principal vein very rich at the contact.

A sucker hunter who has been prospecting on the Pioneer mine at Potosi for two years has been rewarded last week by a rich strike. He was taking out gold at the rate of about \$100 a day. It took a few days before he took out something like \$500 and expects to make more.

SAN JOAQUIN COUNTY

Tuber Mines Sold

George Montgomery reports that the Oh B. mine at Potosi Canyon has been sold and that a new party consisting of a syndicate of investors has taken over the mine. With the sale of this property and its being placed in the list of the Pioneer mine, a great stimulus will be given to all mining efforts in the Salinas valley. The Pioneer mine, belonging to the World Beater mine in Potosi Canyon, has been removed from its old location and set up at the mine. It is expected to be in complete running order by the end of this month. A cyanide plant will be added and

the World Beater will then be on a good paying basis. The sale of the Tiber property means more for southern Inyo than anything that has transpired for a long time. It is sure to be a great haul in profit and when the haul is in a number to be shipped it will awaken great interest in other valuable properties there.

KERN COUNTY

The Hall cyanide plant is about the only active installation in Kern at the present time. Almost everybody has gone for a summer vacation to mountains or coast.

However the coal mines are in active operation and are now able to put out two tons per day. This however can be increased any number of times needed as the main entrance is driven ahead.

Several thousand dollars worth of cotton balls have been gathered up near Desert Springs lately. They are worth \$1.20 per ton and are used in making borax at the borax works.

W. C. Ross and a friend of his from Los Angeles have just arrived at Colorado camp and commenced to open the old mine which belonged to the Cain Co. This is believed to be a great mine but the company was wrecked by its secretary who was sent to the penitentiary no work ever having been done under the rule.

Water is draining up very fast in all springs near the Garlock wells are not yet affected perceptibly.

Considerable excitement has been occasioned by reported strikes in the various oil fields in the Kern river.

The company of which J. M. Keith is a member have gone down 18 feet on section 1 and struck oil. The well will be deepened.

Mr. McWhorter has begun a large hole well on section 18, where the Elwood Oil Company is boring. There are now four outcrops showing about five miles up the river. Mr. McWhorter is also working under a lease from the La Corona Oil Company and struck oil at 128 feet on their property on section 30.

J. Fay has leased his place on section 10 to Whittier & Green of Los Angeles who are to begin boring in a week or so.

A report comes from Colunga, which is verified in the city papers to the effect that a gusher has been opened which wasted 2,000 barrels of oil before the flow could be capped. Another well larger than the Blue Goose has been also opened. The capacity of the Blue Goose is about 1,200 barrels per 24 hours. Carbell & Co. are the owners of the large well.

The outlook in the new Kern river fields seen during and great things are hoped for in this direction by the numerous development companies. Kern County Echo

SAN BERNARDINO COUNTY.

Borax Shipment

Dennis Searles was in town last week. He has gone out to Garcon Station and Borax Lake to look after the property and also to ship 25 tons of borax from Johannesburg. Dennis Searles is a young man and the only son of Mr. Searles who was so long identified with this country and who, more than any other one man did more to make it habitable for white men. Mr. Searles senior, died a couple of years ago and left his interests to his son Dennis, who now owns a one-third in-

terest in the property of the San Bernardino Borax Mining Company. The other two-thirds interest is owned by the Borax Consolidated Company, limited, of England, who own a controlling interest in all the borax of the world. When asked if there was a likelihood of the works starting up soon, Mr. Searles said he knew no more about it than any one else did. He is looking after their interests and is acting under orders from headquarters in coming here and making the small shipment of 50 tons. He will only remain here a few days, going back to San Francisco.—*Randsburg Miner*.

SAN DIEGO COUNTY.

A deed transferring the Elevada mine and millsite and the Agua Jita mine in the Julian mining district, from C. F. Holland to N. D. Jones, of Pittsburg, was filed in the County Recorder's office of San Diego County. The property adjoins the ranch, and is about three miles east of Banner. There is also included in the transaction a piece of property adjoining the mines, together with all dips, spurs and angles of all ledges and mines situated within the boundary lines of the mining claims. The deed was signed on July 3 of this year, although negotiations have been carried on for the purchase of the mining property for a year. The consideration mentioned in the deed is \$1, but the real price is said to be \$17,500.

The Dulzura placer mines, 30 miles south-east of San Diego, which were the first placer discoveries made in California, are today attracting considerable attention. The formations are originally called dikes, which by the action of air and water during the past centuries have decomposed and crumbled the dikes to rich placer deposits. They run to and across the Mexican line. The so-called ores assay \$8 per ton of gold and are easily worked. The mines are also easy of access, and only lack water and fuel to thoroughly develop them on a paying basis. At present there are 17 dry washers at work that pay moderately well. Mr. Gordon, the agent of these mines at San Diego, feels confident of their success.

TUOLUMNE COUNTY.

General Superintendent Newcomb arrived in Jamestown last week, to complete final arrangements for the placing of a sixty-stamp mill on the property of the Harvard Gold Mining Company.

South of the Tuolumne River, the Longfellow mills running on ore from the 185 foot level. At the Mount Jefferson mine, Groveland, a fine ore body has been developed on the 300 foot level.

The F. B. Smith pocket claim on the Fleming vein, located about one mile from Campo Seco, has been generous to its owners of late. Within the past four months pockets containing an aggregate of \$8,000 have been found. Nine pounds of gold, worth \$17.50 per ounce, was shipped in one day. One nugget exhibited weighed \$1500.

COLORADO.

Mr. Henry Sandbothe of Denver, who owns the Little Henry mine on the Montgomery slope of Mt. Lincoln, in the Consolidated Montgomery district near Alma has disclosed on his mine a true fissure vein of rich gold-bearing quartz. He took samples of the mineral along which he will have thoroughly tested in Denver. The vein is at present from six to eight feet in width in mineral.

The discovery attracts the widest attention, as it was generally supposed that fissure veins did not exist on Mt. Lincoln in this section of the country.

The Keystone placer, located on the San Miguel river, four miles west of Telluride, promises to soon become one of the great producers of Colorado.

These immense gravel deposits have been known for a number of years to contain gold in paying quantities, but hitherto every attempt to reach bedrock has resulted in failure, hence they could not be successfully worked. A year ago Prof. Robert Casey secured a bond and lease on this property and began systematic development in the search of bedrock, supposed by experts to lie more than 100 feet below the deepest old workings, which would make the attempt practically impossible. Bedrock was reached a few days ago at forty-three feet.—*Western Miner and Financier*.

IDAHO.

During the past eight years the mines owned by Captain De Lamar at De Lamar, Idaho, have produced \$6,323,000, out of which dividends amounting to \$2,350,000 have been paid, or 17 1/4% of the original capital invested.

L. J. and F. L. Beque and William Strachan of Montreal arrived last week in Wallace and are looking over the Cœur d'Alenes. Mr. Beque is one of the leading attorneys of Canada, having been one of the Queen's Counsel employed in the fishing question with the United States.

Except the Tiger-Poorman and the Morning, all the big mines in the district are running with approximately full crews. The Tiger had trouble with its pumps and the lower level of the mine flooded, says the *Wallace Press*. It is now being pumped out and a number of men are at work. The Morning has about one third of its normal force with additions almost daily.

W. T. Hales, who bonded the Panhandle group a week ago for \$40,000, has been doing a little work on the property and is highly pleased with the outlook. He says he has no doubt that he will make a mine of it.

KANSAS.

Mining in Kansas.

That the state of Kansas is to rank in the future as a producer of something more than cyclones and sunflowers, is, according to the *Denver Republican* of the 26th ult., an assured fact. A correspondent of that paper writing from Ellis, Kan., tells of the important discovery on the Smoky Hill river of a great bed of mineralized conglomerate, which carries good values in gold, silver and zinc. The formation in which these values are found is an easily worked shale and contains fossils of deep sea creatures and fish and rare shells. It, however, appears to be a schist formation, slate colored and heavily stained with zinc. Assays have been made which show values all the way from a trace to \$60 in gold, 20 per cent. zinc and some silver, the best returns coming from fossil selections.

Options have been secured on a large tract of land, by two companies. Many ranchmen refuse to either sell, lease or bond their land. There is a heavy travel to the prairie mining camp. It is said the Union Pacific contemplates building a branch to the district, which lies in the western part of Ellis and the eastern part of Trigo counties.

MICHIGAN.

Work at the Riba mine has been suspended for 30 days on account of the water. New pumps are being placed in the mine and as soon as they are put in operation Supt. MacCarty expects to have no further difficulty with the water.

Shipping began at the Franklin group last week and a large tonnage of ore is sent to the docks each day. Over 150 men are now employed and more men are being taken on each day. Superintendent Parmelee stated that about 1,000 tons would be shipped from the three properties each day until the shipping season closed. No ore has yet been taken from the stockpiles.—*Iron Ore*.

The Hays Mining Co. will begin unwatering the Ashland mines near Gogebic next week. Several Prescott pumps have been purchased and are now being set up. It is hoped that the work will be finished in sixty days.

Work will not begin at the Germania until the water is removed from the Ashland. Drifts will then be made through under the river and will connect with the Germania at the eighth level. This will practically unite the two mines. It will probably be late in the fall before any ore will be lifted at the Germania.

It is reported that Bessemer parties will reopen the Ruggles, Della and other explorations in the vicinity of Upton, Clare county.

Mr. S. S. Curry has located a vein of ore fifteen feet in width at a depth of forty feet on the Bourne property west of Gile. A crew is now crosscutting to locate the foot wall, after which the ore body already cut will be further explored. The ore is of excellent quality.

At the Hennepin, near Ironwood, Captain Sullivan has a number of men at work putting the old boiler house in repair and as soon as this is done and some hoisting machinery put in, old No. 1 shaft will be opened and ore will be taken out.

Capt. Sullivan is continuing testpitting at the Snider, near Ironwood, and now has half a dozen pits down, part of them bottomed in ore. He will thoroughly explore the property and Daylight.

The work done by the Calumet & Hecla Mining company upon the Osceola amygdaloid has been accompanied by the most gratifying results. The No. 16 shaft which has been started at the northern end of the company's property is proving to be one of the best on this lode. It is full of rich copper rock, and is the delight of the shareholders who have seen it. The company now have five shafts sinking on the Osceola amygdaloid which will take care of the territory on the strike of the vein upon their lands. The shafts will not be so close together as upon the conglomerate, as they will adopt some sort of rapid power tram for conveying the rock from stopes to shafts. The distance between the shafts is 2,400 feet.

MISSOURI.

Joplin Ore Market.

The condition of the ore market has been more satisfactory than for months past, and the outlook is bright. The ore buyers paid the Association scale price for all ore and several cars of top grade sold for \$45 per ton, \$2 above the Association price for 60 per cent.

says the *Engineering and Mining Journal*. A large amount of ore sold at \$43 per ton, and the lower grades sold well up. This, with the heavy demand and large output sent the value for the week above \$250,000 again. Lead sold throughout the week for \$27.50 per 1,000. There is every prospect for a continuation of good prices, and it is believed that the conference between the smelting interests and the ore producers will result in establishing a minimum selling price for six months. As compared with the preceding week, the sales show a decrease of 76,840 lbs. of lead, an increase of 2,422,230 lbs. of zinc, and the value was greater by \$57,770. During the corresponding week last year top grade zinc ore sold at \$26 per ton and lead at \$23 per 1,000. The sales were less than the past week by 3,331,380 lbs. of zinc, 25,720 lbs. of lead, and the value was less by \$126,530. For the first 30 weeks of last year the lead sales were greater than this year by 5,586,110 lbs., but the zinc sales were less by 71,003,760 lbs., and the value was less by \$2,848,324. Following is the turn-in by camps:

	Zinc lbs.	Lead lbs.	Value
Joplin	1,671,780	237,640	\$41,271
Galena Empire	3,163,740	241,020	63,114
Cartersville	1,501,410	249,470	36,866
Webb City	498,920	33,740	10,46
Ironorego	80,810		18,909
Bellefleur	223,740		13,412
Daenweg	38,62	52,640	8,582
Hills News	166,020	18,410	4,018
Cave Springs	132,350	3,990	2,393
Central City	358,660	490	6,825
Scotts City	307,650		6,461
South Jackson	338,730	25,000	7,122
Alma	45,201		994
Aurora	1,239,000	11,270	21,259
Granby,	169,000	15,000	7,074
Cartage	108,800		2,287
Wentworth	99,440		789

Total for week... 11,769,340 886,850 \$2,3110
Total 30 weeks 304,599,181 27,102,310 \$6,573,974

MONTANA

The East Butte Mining Company is sinking a two-compartment shaft on the south side of the canon near Columbia Garden, Silver Bow county. It is now down 40 feet, in going which distance it is said to have cut a 10-foot ledge assaying 4 per cent in copper. In the tunnel which has been run above the shaft it is claimed that four ledges were struck, one of them assaying from 12 to 25 per cent in copper. At present the hoisting is being done by hand, but it is the purpose of the company to install a hoisting plant at an early day. The opening up of a good mine there would make things lively in the vicinity of the garden.

The New York and Butte Mining Company is sinking a shaft on the Murray placer, not far from Silver Bow shaft No. 3, near Butte. The company has put up three 100-horse-power boilers with ample pumping machinery. The shaft, which has two compartments, is only a few feet from the Harrington placer of the Butte & Boston Company, where large and valuable deposits are known to exist. There is said to be a copper glance lead in the Silver Bow No. 3, and the New York & Butte Company hopes to find something of the same character. The formation is placer ground with quartz ledges in it, the placer being about 200 feet deep to the bedrock. The work is under the supervision of the Glass brothers.

Stocked for \$2,000,000

The American Mining and Milling Company is the name of the latest company organized for the purpose of mining in the

Libby district, and from a letter received from Mr. Whitworth of Cleveland, Ohio, who is one of the principal owners and promoters of this enterprise, the machinery for the mill which it is intended to erect on the property has been purchased and is now on the road to Libby. This company has acquired the Gold King group of claims on the West Fisher from George Robinson and others of Libby, which are situated on Blacktail mountain, one of the best known landmarks for mining men in that section. These claims have been developed for several years past, and the showing made is a good one, and those who have organized this company feel justified in putting in a mill at the present time.—*Anaconda Standard*.

NEVADA.

Big Antimony Mine in Nevada.

Charles L. Taylor and John M. Fulton of Reno bought from Samuel Hunt, Orrin Bennett and S. L. Thacker, the largest antimony mine in the United States, there being it is said, over 20,000,000 pounds of high grade ore in sight. The price paid could not be ascertained. The mine is located in Humboldt county about seventy miles north of Winnemucca.

Silver Peak Notes.

Leidy & McAfee's mill, known as the Grasshopper started up and is pegging away on the best batch of ore ever worked there. It is rich in free gold, and as they have new plates, they expect a big clean-up. The mill is "out of doors," as it were, for the machinery is not housed in yet. The engineer goes around firing and oiling up with an umbrella over his head, and the battery feeder has to turn round every time he wants to cool off his sunny side. But the mill works all right and the boys have a good show to make some money. They are taking out ore at the mine and will run the mill steadily.

Henry Jaegles shipped another carload of ore last week to Selby from the Homestake, and Sam Case is going to work about 50 tons from the same mine at the mill here.

Barnes, Cunningham and Kyser are taking out good ore.

Berger & MacNamara have a gold mine at Alida which is very promising. They have crosscut for 20 feet and are not through it yet. They intend to develop it this summer.—*Walker Lake Bulletin*.

NEW MEXICO.

Elizabethtown Notes.

The Confidence mill is running on ore from the Independence this week.

Tom Pulliam and associates have struck the lead in the tunnel of the Rosita. This property is adjoining the Aztec, situated on the east side of Old Baldy.

H. H. Aigne received the first of last week two of the Barr patent amalgamating sluice boxes. They have been placed and are now being used in connection with his sluice boxes on the Moreno placers.

Messrs. McIntyre, Davis and Sparr are sinking a shaft on the Bobtail extension for the Smithfield Co. They found the vein near the surface and are sinking on it. The ore found is of the same kind and value as the Bobtail proper.

Messrs. Johnson, Lawson and McKay are operating the Rebel Chief No. 2, situated on the Ute creek side of Baldy. This property

contains some high-grade ore that will pay to ship, and these parties are sacking the ore as fast as mined and will ship the same to Pueblo.

The Ruby King and High Five, two good properties on upper Red river, have steadily increased in value and width of veins from the very first tests made, says the *New Mexican Miner*. Assays running \$35 and \$40 have recently been had on these properties. J. C. McCullum and associates are locators and owners of these claims.

OREGON.

Bohemia Mines.

In the Wall street group of mines in the Bohemia district near Cottage Grove, ore has been struck which assays \$67 in gold, silver and lead, and this ore is pronounced very desirable for smelting purposes, as it contains material for fluxing the more rebellious rock. The vein, although but four inches wide on the surface, thickens as it is followed down, and at a depth of 20 feet had increased to 18 inches, with well-defined walls. A tunnel is now being run, which when in 60 feet will strike the vein at a depth of 128 feet from the top surface. A contract has just been let for running 100 feet of tunnel on the White Swan, which is owned by Eugene capitalists. This is a very promising prospect, as it is situated on the same lode as the Musick mine, now working a large force of men in getting out ore for the 15-stamp mill in constant operation. A number of teams are also busy, hauling concentrates from the Musick mine to Cottage Grove for shipment to the smelter at Tacoma.

A 5-stamp mill on the Helena is chewing up ore to its full capacity, and there is a large amount of rich rock on the dumps, the result of several months' development work. The amount of ore in sight, though not yet mined, Mr. Davidson says, is very encouraging to the owners of the Helena. The Harlow & Stokes mine, near the Helena, is also running a 5-stamp mill. The latter mine gives great promise as a rich ore producer.

SOUTH DAKOTA.

Fred Zipp, of Deadwood, has leased the Commonwealth mining claim to David Arnold. The claim is located near the Golden Crest and there is ore in sight.

A 20-foot shoot of ore has been encountered on the Edna mining claim, in the Ida Gray district, which will run \$40 a ton gold. The ground is under lease to Sol Burns.

A great deal of work is being done in developing mining ground around Hill City. On Friday gulch there are several promising properties, which have been opened up by shafts to a depth of 50 feet or more. The ore is free-milling and assays have been obtained which were very rich in gold.

UTAH.

The machinery for the Apex concentrator at Park City is all in place and in a few days will be in operation.

The American Smelting and Refining Co. has decided to erect another stack at the Germania plant at Salt Lake City. Ore supplies are increasing so rapidly that this is absolutely necessary.

Work on the Creole in West Tintic, the property of Messrs. Rumpp and Turner, of Silver City, is going on. The tunnel has been

run in a distance of 40 feet on the vein, and they have started to sink a shaft. They have about five tons of very good ore on the dump which was taken out in running the tunnel.

Returns on samples from the Wandering Jew in Davis county give 23.8 per cent. lead and \$13.22 in gold per ton.

The Eutonla mining company has been organized to develop the Bryan group of seven claims in Krickson district, Tooele county.

The Paymaster mine in the Tutsagubet mining district, near St. George, has been bonded to Samuel L. Adams, of that place, for \$40,000.

On account of bad air, work on the Alice mine at Park City was temporarily suspended last week. A fan was put in and work was resumed.

There is a fine showing of copper in the Steele group, just below Park City, which promises to reward the owner of the group, who has been working and waiting for returns for thirteen years.—*Idaho County Republican*.

WASHINGTON.

The Butte & Boston Company, of Republic, has been reorganized as the Butte & Boston Gold Mining and Milling Company, with the following trustees: Phil Aspinwall, J. H. Wilmot, W. B. Heyburn, B. E. Barinds, W. S. Norman and D. Holzman, of Spokane, and J. H. Forney, of Moscow, Idaho. P. Aspinwall will act as manager.

On the King Solomon, one of the first locations on Palmer Mountain District, near Loomis, an incline shaft has been sunk 130 feet on the vein, which averages 5 feet wide. The ore runs in silver, copper and gold, the principal ore being silver. A contract has been let for another 100 feet on the incline.

The Golden Zone Mining Company, near Loomis, has four adits amounting to 2000 feet. They are about 100 feet above the base of the mountain. The company is now making a raise and sinking a wize to connect them. Many surface improvements have been made in the way of mess and bunk houses, residences and office. A 30-ton concentrator is now being installed.

The Webe Group, at Loomis, has been taken over by Fargo, N. D., and Milwaukee, Wis., people, who have instructed A. M. Webe to contract for about 1,200 feet of work in shafts, adits and drifts. A steam hoist and other machinery, as well as cars, track, etc., will soon be purchased, and the force of 10 men increased.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

D. A. Holbrook was in Rossland from Boundary City. He had with him a number of handsome specimens from the properties of the Boundary City Mining and Milling Company. The handsome specimens are from the Gold Bug claim. They carry large quantities of native silver, besides 12 ounces in gold. It is claimed that the vein from which this was taken is about four feet in width and that the ore will average \$500 to the ton. This seems very high, but a look at the specimens would convince the most skeptical that this average is under rather than over the amount of the values that the ore carries. The other specimens from the Spokane and S. H. B. averages \$30.44 to the ton. This ore carries a large percentage of copper. Work is being carried on under the superin-

tendence of Mr. Alex. Sharp, late foreman of the Columbia and Kootenay. Mr. Sharp is sanguine about these properties, and he says the group is as good as the Columbia and Kootenay. The work at present in progress consists of sinking a shaft and running a tunnel into the Gold Bug. Both are on the same vein. The intention is to increase the force as the occasion demands, and to ship as soon as the railroad is ready to receive the ore. Superintendent Sharp says he is ready to begin the shipping of ore at any time.

Million Dollar Smelter.

Paul Johnson, a graduate of the Royal School of Mining, of Stockholm, Sweden, and John Norborn, of Union Iron Works, San Francisco, have arrived in Seattle, Wash., en route to Greenwood, B. C., where Johnson, as the representative of an \$8,000,000 English syndicate, will construct a copper smelter, at a cost of \$1,000,000.

The plant will be the largest in the Dominion of Canada, and of the most modern pattern. It is to be devoted exclusively to the treatment of copper ores, and will be completed in November. The Union Iron Works has the contract for all the iron work, and Norborn is also to look after the matter of supplying power for the plant.

MEXICO.

Mr. L. O. Cowan is reported as having negotiated the sale of his gold property at La Calera, 37 miles southeast of Magalena. The price is stated at \$60,000.

In the Ahogado mine a vein of very rich silver ore 12 feet wide has been recently cut. Mr. J. D. McGilvray, the superintendent, and the lucky owners are greatly elated over the find.

Don Manuel Tamborel of the Sierra Pinta mines in the Altar district, has gone to Guaymas to attend to shipping up the coast a consignment of machinery. The mine is about eleven leagues from the coast.

Mr. C. W. Hayes and associates, who are operating properties northeast from Imuris, have enroute from Denver a carload of machinery. They are building a wagon road from Casita station and will trauship at that station.

It is credibly reported that Mr. Talbot has sold La Cuchilla, a very productive gold mine located about three leagues from Altar. The purchaser is a Mr. Weir of Shasta county, California, and the price is stated to be \$30,000 gold.

Messrs. George and Mark Wanless have recently denounced a very promising copper property within three hours' ride of Hermosillo, which has long laid open to location but was considered by no one worthy of attention. They have uncovered a 60-foot ledge of good copper ore carrying some value in gold.—*Nogales Oasis*.

GENERAL NEWS.

The Smelter Strike.

The operating committee of the American Smelting and Refining Company held a meeting, August 3, and decided not to reopen the smelters in Denver and Pueblo at the scale recommended by the state board of arbitration. The committee published a card in which it says:

"The decision of the board of arbitration cannot be accepted by the American Smelting and Refining Co., because it is unreasonable and unjust."

SAMPLING PLACER DEPOSITS

(BY EDWIN W. KIRBY.)

(Continued from our issue of July 15th, 1899.)

Sampling Gravel.—In practice, gravel for tests is conveniently washed either by the pan, the rocker, or by small sluices. In pan tests, at each point sampled, a number of pans of gravel are taken at uniform distances apart, down the exposed face of gravel. On account of the variation in the different layers, much judgment is necessary to do this properly. The bank may comprise stones of every size, and only the finer and richer material filling the interstices between the larger stones can be taken into the pan. The sample is, therefore, limited to material less than three or four inches in diameter. In most beds this pan-size gravel ranges from 25 to 60 per cent of the entire mass. This percentage should be estimated. It is not possible to calculate from it the value of this entire mass, because the larger stones are not barren. Much of the gold adheres to their surface, and fine gold seems to have a special tendency to do this. Hence if a pan test shows 20 cents per cubic yard of fine material tested, and this represents only 50 per cent of the mass, it is not correct to assume that the latter averages only ten cents per yard. The test merely fixes an upper and a lower limit, and the real contents lie somewhere between the two; in this case between ten and twenty cents.

Careful hand panning collects fine and scale gold perhaps more closely than any other practical method. It will be found best to wash down to the black sand, which is almost always barren, and then determine the gold by assay. 120 pans are generally called a cubic yard, but the error of measurement in this way is very great. It is better to measure the sample in a small box made for the purpose. The swell of loose gravel above its original bulk in the bank is generally about one-fifth, so that one cubic yard in bank is equal to 1.20 cubic yards in the measuring box.

If the gold is not too fine, and many points are to be sampled, and a large quantity is to be handled from each point, it is better to wash in a rocker instead of a pan.

On account of the difficulties mentioned, the only accurate tests are those in which the excavation of gravel is measured, and the sample taken is so large that it will include all workable sizes of stones, standing in the bank. This requires the use of running water in a sluice. The latter may be 12 or 18 inches wide, and, say, 36 to 48 feet long, with slat riffles arranged for easy removal. It is not necessary to use quicksilver unless the gold is very fine, and the quantity so small that a clean-up is difficult. The gravel from distant sample points may be hauled by wagon to the sluice. For gravel carrying fine gold, the writer has used an undercurrent attached to the sluice, but the additional saving has never exceeded 4½ per cent of the total gold.

The following figures are taken from a certain case which is selected because it typifies a large class of the gravel deposits now remaining. It also illustrates the distribution of fine gold, and the comparative results of tests made by the methods above mentioned, and washing upon a large scale. The gravel was a heavy mass with the gold so fine as to average only 1-140 of a cent to a color. It was, therefore, very uniformly distributed throughout the mass. The tests were scattered over some 200 acres and represent only the general mass of gravel, as the exposures

had not developed any channel or other local concentration of coarse gold. The data from previous hydraulic washing on 60,000 cubic yards showed a recovery of 5.33 cents per cubic yard. Pan tests were made at some 50 points, each test including 6 to 20 pans. The face of gravel exposed at each point ranged from 6 to 30 feet in depth.

A single test was as follows: Vertical depth of gravel sampled, 25 feet; number of pans taken, 13; measured volume of sample, calculated to volume in bank, 0.119 cubic yards; total gold saved (by assay), 1.245 cts.; gold per cubic yard of sample, 9.65 cents; estimated percentage of bank represented in sample, 40 per cent; average contents of bank if large stones are barren, 3.86 cents; actual average of bank lies between 9.65 cents and 3.86 cents.

In order to show the range of values a list of the results is given:

RESULTS

Contents per Cubic Yard (Cents)		Contents per Cubic Yard (Cents)		Contents per Cubic Yard (Cents)	
Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit
9.65	3.86	1.24	1.78	1.00	3.15
2.4	2.83	1.8	0.77	2.09	78
1.1	2.25	10.28	9.7	1.08	8.58
1.77	0.79	1.3	2.48	1.79	14
12.44	1.08	0.4	0.06	8.8	3.29
2.76	1.18	0.4	4.0	1.1	1.83
1.1	1.4	2.14	0.18	0.1	2.1
7.7	2	3.68	2.28	4.6	2.61
13.8	10.40	6.2	4.0	5.7	3.45
13.8	8.47	1.9	7.28		
8.91	2.13	9.17	7.08		
11.03	6.92	1.18	0.11		
6.80	4.8	2.07	1.24		

Another series of tests was made by careful sluice washing with an undercurrent on quantities measured in place, and ranging from 30 to 80 cubic yards each. The face of gravel sampled in each case ranged from 25 to 35 feet deep. The results were as follows:

6.83 cents per cubic yard.
5.78 cents per cubic yard.
7.61 cents per cubic yard.
5.16 cents per cubic yard.
6.86 cents per cubic yard.

These tests were so distributed as to make the arithmetic mean of 6.45 cents a correct average. This figure represents the mass of gravel which had already yielded 5.33 cents by hydraulic washing. Hence large scale work yielded 82.5 per cent of the contents as shown by small sluice tests. No doubt the difference is mainly accidental, because a few tests on such small quantities cannot check against the average contents of 60,000 cubic yards. The test sluice, however, has a slower current than the working sluice, and the undercurrent saved about 0.3 cent additional, so that a recovery somewhat higher was to be expected. A number of the pan tests were also taken from this particular ground, and these averaged 6.98 cents as the upper limit, and 2.86 cents as the lower limit. This indicates by calculation that the large stones in the bank carried about 6.0 cents per yard, or almost as much gold as the pan-size gravel.

Excavations may be measured by the usual method of cross sections. When a sample is cut down the face of a gravel bank, the writer has found it more convenient and accurate to use an artificial reference plane made by stretching two wires from top to bottom of the bank. The cross sections before and after excavation are measured from this plane.

(To be Continued.)

THE SELF COOLING CONDENSER.

BY THOMAS J. WILKINSON

"This test showed that each 48 inch by 20-foot boiler would evaporate into steam 4,281 pounds of water per hour, giving a capacity of 115,587 pounds steam per hour with every boiler in operation. Coincident with the boiler test, one 18½ by 30 Buckeye engine was using the steam from the boilers under test. Indicator cards were taken at fifteen minute intervals for five hours. The result from the engine test of all cards showed a steam consumption of 46.8 pounds steam per indicated horse-power per hour.

"After the data derived from these tests had been analyzed, it was recommended that the Buckeye engine should be converted from the 18½ by 30 high pressure engine into a 14½ and 25 by 30 tandem compound condensing engine; also that an additional 750 horse-power tandem condensing engine should be erected in the station, together with a cooling tower and the necessary condenser equipment, and that the only change in boilers should be to raise the working pressure. No increase in boiler capacity has been made.

"After investigation, the Barnard patent cooling tower was selected as desirable to best meet the conditions existing at this plant, which were minimum floor space, and minimum weight, and a considerable elevation above floor level of engine room.

"The cooling tower is of the twin type, having two chambers, with a pair of fans supplying a strong draft of air to each chamber. The interior dimensions are 12 feet 3 inches by 18 feet by 29 feet 6 inches high.

"The tower is mounted on a substructure of steel columns and I beams, supported on substantial foundations.

"There are outside galleries and ladders, affording convenient access to necessary points.

"The shell of the tower is of steel plate, reinforced with angle and channel irons.

"The hot water from the condenser is delivered through a 10-inch wrought iron pipe, extending the whole length of each chamber, and slotted on top and perforated at the bottom, giving equal distribution to a series of water.

"Means are provided for cleaning these pipes, which is found necessary in cold weather, when the cylinder oil from the exhaust steam is liable to clog the pipes and interfere with the uniform distribution of water.

"The hot water falls from the distributing pipes over galvanized wire mats.

"Each mat is suspended by galvanized iron hooks, and is easily removed for cleaning.

"In actual service it is found that the water is uniformly distributed.

"The circulation of air is furnished by two

pairs of steam-driven fans, each pair of fans being mounted right and left on the same shaft, and the four fans being capable of delivering the necessary quantity of air when driven at a speed not exceeding 150 revolutions per minute.

"The air entering the tower chambers at the lower section is deflected vertically from each fan, thus avoiding cross currents, and affording a uniform blast upwards and between the mats.

"The rated capacity of each section of this cooling tower is to cool the circulating water needed to condense 12,500 pounds of exhaust steam, from an initial temperature of 132 degrees Fahr., when the atmospheric temperature does not exceed 75 degrees Fahr., nor the humidity 85 per cent.

"The following table, extracted from the log records of many months, shows details as to temperatures, speed of fans, reduction of temperature of condenser discharge, etc.

"As previously noted, the 18½ by 30 Buckeye engine was changed to a 14½ and 25 by 30 tandem compound condensing engine, by bolting new tandem cylinders on the existing frame and making necessary alterations in valve rods, etc.

"Please note the following data

"Revolutions, 137; steam pressure, 113 pounds; mean effective pressure, 50.16 pounds; vacuum per gauge, 26 inches; horse power developed in high-pressure cylinder, 163.42; horse-power developed in low-pressure cylinder, 168.48—total, 331.9 horse-power, and of this 90.52 horse power is below atmospheric line. It will be noted that the work is divided equally between the high-pressure and low-pressure cylinders; all cards show similar results.

"This change in an existing engine clearly illustrates the advantage derived from the condensing system.

"In addition to the tandem Buckeye engine, a tandem compound condensing engine, 20 and 36 by 42 inches, 120 revolutions per minute, Corliss type, built by the Pennsylvania Iron Works, was installed to drive a connected Stanley 500 Kilowatt two-phase A. C. generator. This engine works 15 to 17 hours per day.

"The usual work required from the cooling tower and condenser varies from 7 to 17 hours per day. A notable record was made on August 2, '98, when the run was from 7 A. M. until midnight; and from the records the following data are extracted:

	Maximum.	Minimum.
Temperature atmosphere...	103°	83°
Temperature condenser discharge water to tower...	128°	106°
Temperature injection water from tower.....	98°	91°

TABLE OF EXTRACTS FROM LOG-BOOK SHOWING TEMPERATURES, VACUUM, SPEED OF FANS, HEAT EXTRACTED THROUGH COOLING TOWER, ETC.

	Jan. 31.	Feb.	June 20	July	August 26	Nov. 4
Time	9 p. m.	8 p. m.	8 p. m.	8 p. m.	8 p. m.	5:35
Temperature atmosphere.....	30°	36°	78°	96°	85°	59°
" condenser discharge water						
to cooling tower.....	110°	110°	120°	130°	118°	129°
Temperature injection water returned from tower.....	65°	84°	84°	93°	88°	92°
Degrees of heat extracted by tower.....	45	26	36	37	30	47
Speed of fans at tower, R. P. M.	36	0	145	162	150	144
Vacuum at condenser, inches.....	25½	26	25	24½	25½	25
Strokes of air pump.....	30	30	37	44	43	28
Boiler pressure, lbs.....	110	110	120	120	120	112
Temperature boiler feed.....	212°	212°	210°	211°	213°	213°

Degrees of heat extracted by lower.....	39°	21°
Speed of fans, revolutions per minute.....	160	140
Vacuum at condenser, inches	26	26
Strokes of air pump.....	50	38
Boiler pressure, lbs.....	121	100
Temperature boiler feed.....	212°	200°
Engine horse-power devel- oped.....	900 HP	400 HP
"A continuous heavy load was carried during the entire 17 hours' run. This was not a test record, but simply daily service."		
"Indicator diagrams were taken November 8, '98, from 20 and 36 by 42 tandem compound condensing Corliss engine. The conditions were as follows:		
Engine revolutions per minute	120	
Steam pressure, lbs.....	112	
Vacuum at condenser, inches	25	
The area of the cards shows the work done in high pressure cylinder to be		
	311.8 HP	
And in low pressure cylinder,	131.5 HP	
Total, I H P.....	643.3 HP	
"Work done in low pressure cylinder below atmospheric line, 185.1 horse power. Simultaneously with the engine, the air pump and fan engines were indicated.		
The work done by the air pump.	13.75 HP	
The work done by the fan engines.	13.5 HP	
Total external work.....	27.25 HP	
The amount of work, if deducted from the work done below atmospheric line in low-pressure cylinder (i. e., 185.1 horse-power), leaves a net gain of 157.85 horse power by the use of the condenser and cooling tower.		
(To be Continued.)		

Latest Mining Decisions.

Prepared by Andrews & Murdoch, Berrien Springs, Mich.

A member of a mining partnership has authority to employ a laborer to work in a mine belonging to the firm. *Lyman et al vs. Schwartz*, 57 Pac. Rep. (Colo.) 735.

Assessment work done for a mining claim may be done on an adjoining claim, where it is shown that it was intended for such a claim, and that the work done would inure to its benefit. *Kloppenstine vs. Hays*, 57 Pac. Rep. (Utah) 712.

A recital, in the location notice of a mining claim, that it is the relocation of another mining claim, is an implied admission of the validity of the former location. *Providence Gold Min. Co. vs. Burke*, 57 Pac. Rep. (Ariz.) 641.

A mining partnership exists between persons jointly engaged in working a mine under an agreement by which some of them are to furnish the money, others to do the work, and all to share equally in the result. *Lyman et al. vs. Schwartz*, 57 Pac. (Colo.) 735.

The fact that one of two joint locators of a mining claim is not a citizen of the United States, but the other is, does not invalidate the location, and a joint conveyance by them vests a valid title in the grantees. *Providence Gold Min. Co. vs. Burke*, 57 Pac. Rep. (Ariz.) 641.

Where one locates a mining claim on the theory that a former location by another was forfeited by failure to do the necessary amount of work thereon, the burden is on him to prove such failure in an action by the former locator to determine the right of possession. *Providence Gold Min. Co. vs. Burke*, 57 Pac. Rep. (Ariz.) 641.

Where mineral claims in litigation are lo-

cated on lands recently [a part of an Indian reservation, and which have not been open to occupation by white people except for mining purposes, the actual mineral character of the land involved must be shown, otherwise the court will not adjudicate rights therein in favor of either party. *Durant vs. Corbin*, 94 Fed. Rep. (U. S.) 382.

In an action involving the title and right to the possession of certain mining ground, a deed given by the original locator to plaintiff prior to the commencement of the action, for the purpose of correcting the description, is properly admitted, as bearing on the rights of parties. *Kloppenstine vs. Hays*, 57 Pac. Rep. (Utah) 712.

A location notice of a mining claim is admissible in evidence, though the location of the closing location line is indefinitely described, the location being sufficient in all other respects, and the proof showing that all the monuments were on the ground. *Providence Gold Min. Co. vs. Burke*, 57 Pac. Rep. (Ariz.) 641.

It is the policy of the government, in disposing of its mineral lands, to make a general distribution among as large a number as possible of those who wish to acquire such land for their own use, and it is contrary to this policy, and to the provisions of Rev. St. §§ 2230, 2231, to permit one person to cover more than 20 acres of placer ground by one location by the device of using the names of his employees or friends as locators. *Durant vs. Corbin*, 94 Fed. Rep. (U. S.) 382.

Under a contract for milling ores which provides that "said ores, rock, and earth shall be worked in the usual and ordinary manner of working like ores, and returns therefrom shall not be less than seventy (70) per cent of the pulp assay," the return is for an average of 70 per cent and not on each ton of ore furnished. *Fox vs. Mackey et al.*, 57 Pac. Rep. (Cal.) 672.

Although the owner of a mineral location, originally valid, has failed in his assessment work, so that the ground is open to relocation, yet if, before any valid relocation is made by others, or after the abandonment of a valid relocation, the original locator or his grantee resumes possession, and does the necessary work, his rights are revived under the original location. *Kloppenstine vs. Hays*, 57 Pac. Rep. (Utah) 712.

The provisions of Rev. St. § 2320, that no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located, is mandatory; and, to sustain an adverse claim filed against an application for a patent on a mining claim on the ground of a conflicting prior location, there must be evidence reasonably tending to show such discovery before the prior location was made. *Ledoux vs. Forester et al.*, 94 Fed. Rep. (E. S.) 600.

Defendant contracted to mill ores furnished by plaintiff, and return 70 per cent of the pulp assay. Plaintiff sued for an accounting, alleging fraud and conspiracy, and that less than 70 per cent was returned by defendant on a certain number of tons of ore furnished. There was allegation that the 70 per cent had reference to the pulp assay, or how much it fell short of 70 per cent, or when the ore was furnished. *Held*, that such complaint was insufficient. *Fox vs. Mackey et al.*, 57 Pac. Rep. (Cal.) 672.

Under Rev. St. § 2324, requiring a mining location to be distinctly marked on the ground so that the boundaries can be readily traced, in marking a claim regard must be had to the topography of the ground and the

markings must be so placed that they can be readily followed from one to another, and that a person accustomed to tracing the lines of mining claimsmen, after reading a description of the claim in the posted notice of location, by a reasonable and bona fide effort, find all the stakes. *Ledoux vs. Forester et al.*, 94 Fed. Rep. (U. S.) 600.

2 Hill's Ann. Laws, p. 1906, providing that miners' liens shall not bind the mine upon which labor is performed for a longer period than six months after the claim therefor shall have been filed, unless within that time a suit be brought for their foreclosure, provides an exception to 1 Hill's Ann. Laws, § 16, providing that absence or concealment of defendant shall prevent the running of the general statute of limitations, and the absence from the state of the agent of defendant mine does not prevent the running of the former statute. *Burns vs. White Swan Min. Co.*, 57 Pac. Rep. (Gr.) 637.

PERSONAL NEWS ITEMS

C. C. HOWARD Jr., president of the Mount Shasta Lumber Co., Ltd., of California, has recently returned to San Francisco, Cal., from the East.

R. H. HERRON of R. H. Herron & Co. has returned to Los Angeles, Cal., after examining the oil-bearing territory of Colman County, Cal.

FRANK OWEN of London and A. W. GUY of London, an Englishman and a Frenchman, have recently arrived in the United States to examine miner claims in West Virginia for a London Syndicate.

H. Z. GARNER of Los Angeles, Cal., is examining mining property in Trinity County, Cal.

PROF. F. F. GROSSER of Topeka, Kans., returning to California, spent last week in examining the geological conditions of the most prominent Utah districts.

J. C. DEXTER, vice president of the Colorado Fuel & Iron Co., is in Los Angeles, Cal.

THE NATIONAL ASSOCIATION OF ENGINEERS have adopted a very generous policy, by allowing for its members any position that may be possible to obtain. Employers of engineers should encourage such a policy, and make their needs known, when desiring to employ such engineer. See advertisement on page 20.

PATRICK CLARK of Spokane, Wash., was recently visiting in Rosland, B. C.

EARL BROWN, president of the Colorado and California Mining & Smelting Co., of Los Angeles, Cal., has returned to his local duties after an extended pleasure trip through the East.

JOHN B. FARISH, M. E., of Denver, Colo., is in San Francisco, Cal.

THE TORRES & PRIETAS RAILWAY has secured the new wood contract with the Grand Central Mining Co. of Minas Prietas, Sonora, Mexico, and will begin delivery of fuel.

J. L. PARKER of Rosland, B. C., has been making an examination of the Salmon and Yellowstone sections of the Ymre Division, West Kootenay, B. C.

JON SMITH of the Grand Central Co., at Minas Prietas, Sonora, Mexico, will have charge of the work to be done for the company on the Verde mine.

DR. PATRICK GLADDON, who is president of several large Colorado mining companies, is in San Francisco, Cal.

B. N. WHEATON of Minas Prietas, Sonora, Mex., has terminated his connection with the Grand Central Co., and gone to California.

JOHN B. HASTINGS, general manager of the War Eagle Mine, has been making an inspection of the mining outlook on the west coast of British Columbia.

SUPR. FRANKLIN LEONARD of the Sutor Tunnel Co. is in New York City, N. Y.

The Mining And Metallurgical Journal

THE MARKETS.

ALL PRICES ARE QUOTED IN NEW YORK AND OTHER PLACES UNLESS OTHERWISE STATED. PRICES ARE NEW YORK PRICES UNLESS OTHERWISE STATED. PRICES ARE NEW YORK PRICES UNLESS OTHERWISE STATED. PRICES ARE NEW YORK PRICES UNLESS OTHERWISE STATED.

New York, August 14th 1897.
The following are the silver, copper and lead quotations for the last two weeks:

	SILVER	COPPER	LEAD
July 1	100 1/2	16 1/2	4 1/2
" 15	100 1/2	16 1/2	4 1/2
" 29	100 1/2	16 1/2	4 1/2
" 12	100 1/2	16 1/2	4 1/2

SILVER.
The silver market has been firm. Less silver has been going forward because of the strike in Colorado and the scarcity of lead ores.

COPPER.
The market continues very firm and continues to rise in this country proceeds at a marvelous rate and appears to be on the increase. We quote for Lake copper 17 1/2, in electrolytic copper a good bar excess has been done at 17 22c and 17 33c for cakes, wirebars and ingots, and at 17 10 1/2 for cathodes.

LEAD.
The demand for lead at this season of the year is, as usual, very large. Prices have advanced somewhat and the metal

is now quoted at 4 55/64 00. The foreign market is not well supplied, there being signs of a fall approach that the demand in this country will be all the more. New York is quoted at 4 50 while the foreign market is 2 55 for good ordinary and 2 10 for extra.

SPRINTER.
The demand for sprinter has been better and it appears that consumers in general are not well supplied, there being signs of a fall approach that the demand in this country will be all the more. New York is quoted at 4 50 while the foreign market is 2 55 for good ordinary and 2 10 for extra.

ANTHRAKITE.
Anthracite continues to be in demand and prices are on the rise. The market is quoted at 10c for the best and 8c for the inferior.

NICKEL.
Nickel continues unchanged and no alteration in prices can be reported. We quote for low lots 35 1/2@36c per lb., and for smaller orders 35 1/2@38c. London prices are 14@16d per lb., according to size of order.

ZINC.
There is quite a reaction in the market. London is quoted in closing at £113 17s 6d for spot and £139 for three months. New York is quoted at 11 1/2.

PLATINUM.
The demand for Platinum is active and prices continue high. New York is quoted \$15 50 per ounce for large lots and \$16 1/2 for smaller orders. The London quotation is 62 1/2@64s an ounce.

TOBACCO.
Purified tobacco is quoted in cases of 120 lb at 30c per lb. in 5, 10, 25 and 50 lb tins at an advance.

THE NEW YORK QUOTATIONS REMAIN \$42 PER TON WHILE LONDON PRICE IS STILL 28

7s. 6d. with the same quotation given for second hand.

POWDER.
Black blasting powder in 70 lb casks, minimum car 728 kegs, \$5.50 per keg less car lots, \$2 per keg.

COKE.
There has been a quiet trade in coke with a slight improvement expected. In Can. Coke, 100 lb. Connellville fly coke 72-lb. cys. \$4.70 New River \$4.10 Perforated 3.60 Grade 4.70 60s works coke large per ton 10

THE SAN FRANCISCO MARKET IN BORAX IS FIRM WITH A GOOD DEMAND, POWDERED REFINED IN CAR LOTS 7 1/2c.

THE MINOR METALS.
Quotations are given below for New York delivery:
Aluminum No. 1, 99 per cent. ingots, per lb. 35 1/2c No. 2, 99 per cent. 35 1/2c Rolled sheets per lb. 38c up Aluminum-Nickel, per lb. 10 1/2c Aluminum-bronze, per lb. 10 1/2c Brass, per lb. \$4.40 Phosphorus, per lb. 48 1/2c Magnesium, per lb. \$7.50 Tungsten, per lb. 70c Vanadium, 60 per cent. 50c
Variations in price depend chiefly on the size of the order.

ACIDS.
Prices show no change and there is only a moderate business done. Some inquiries for sulphuric acid are reported. Blue vitriol continues rather unsettled and offerings are again said to have been made at shade below quotations. There is some excitement in coppers, offerings of large quantities having been made by agents in New York representing a new producer whose identity is not disclosed. The works are said to be near Pittsburgh.

DEMAND FOR SODA. The market is uneventful. Demand continues fair and prices unchanged. Spot best unworked soda can be had at \$21.75 @ \$22.00 per ton, and shipments at \$20.00 @ \$20.75, while thirds are from \$1.75 @ \$2.00 less.

NITRATE OF SODA.
There is still some talk of higher prices but prices are not expected to rise at \$1.37 1/2 @ \$1.52 1/2 per 100 lbs., while a stock is offered at \$1.70 @ \$1.62 1/2 and a few extra large sellers ask \$1.65 per 100 lbs.

CHEMICALS.

Buying is limited for immediate consumption, but for next year's delivery orders are still booked for caustic soda. A large powder owing to the warm weather, is in request. Chlorate of potash is still easy. Caustic soda is quoted for high test, per 100 lbs. l. o. b. works, \$1.55 @ \$1.65. New York, \$1.60 @ \$1.65. Foreign brands are quoted in New York at \$1.60 @ \$1.70.

Sulphur is quoted per 100 lbs. l. o. b. works at 70c while the foreign product is quoted in New York at 65c @ 70c. Bi-carbonate of soda is quoted l. o. b. works, at \$1.12 1/2 @ \$1.25, and \$1.50 for extras. The New York price for foreign is \$2.12 1/2 @ \$2.25. Chlorate of potash crystals are quoted for domestic \$9.25, and \$9.50; foreign \$9.50 @ \$9.75, and powdered is quoted \$9.75 @ \$10.00, with foreign at \$10.00 @ \$10.25.

CHLORIDE OF LIME.
English prime brands \$1.60 @ \$1.70 American, \$1.70 @ \$1.80, Continental P., \$1.50 @ \$1.60 per 100 lbs.

"THE DAYS OF TIGHT BELTS ARE OVER"

CLING-SURFACE did it

ALL BELTS WILL TRANSMIT GREATER POWER AND RUN PERMANENTLY LIKE THIS WITH POSITIVELY NO SLIPPING NO HOT BOXES NO TAKING UP NECESSARY.

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The Handiest, Simplest and Most Efficient Steam Pump for General Mining, Quarrying, Railroad, Irrigation, Drainage, Coal Washing, Tank-filling and for all other uses. It handles liquids heavily impregnated with sediment. Muddy or gritty liquids handled without injury to the pump.

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CATALOGUE ON APPLICATION
CORRESPONDENCE SOLICITED

Pulsometer Steam Pump Co.

123 Greenough Street, New York City

INCORPORATED MINES PAYING DIVIDENDS.

NAME OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of Dividend	Date of Last Dividend	Amount Paid in Dividends	Kind of Minerals Produced
1. American	California	100,000	\$ 500,000	\$ 5	\$ 10	July 1899	\$ 100,000	Q
2. American	Idaho	12,000	125,000	10	0.2	Apr 1 1899	2,400	G, C, L
3. Alaska T. and W.	Alaska	200,000	5,000,000	25	37.5	Apr 1899	10,000,000	G
4. Alaska Mexican	Alaska	200,000	1,000,000	5	10	Apr 1899	363,000	G
5. American	Montana	1,200,000	30,000,000	25	1.20	May 1899	17,000,000	G
6. American Island	Colorado	600,000	600,000	1	0.3	Apr 1899	198,000	G
7. American Island	Colorado	300,000	3,000,000	10	0.9	Mar 1899	407,000	G, S, L
8. American Island	Montana	600,000	1,000,000	25	1.25	Mar 1899	1,52,000	G, S, L
9. American Zinc, Lead and Smelting	Missouri	400,000	500,000	25	10	July 1899	8,000,000	L
10. American	Michigan	400,000	2,500,000	25	60	June 1899	8,000,000	L
11. American	California	200,000	2,000,000	10	10	June 1899	8,000,000	L
12. Bull B. Co.	Montana	250,000	250,000	1	0.6	May 1899	702,118	G, C, S
13. Central Lead	New Mexico	300,000	8,000,000	10	50	June 1899	1,600,000	G
14. Boston & California	California	600,000	600,000	1	0.6	March 1899	8,000	G
15. Boston & California Smelting	Colorado	15,000	750,000	50	5.00	April 1899	375,000	G, C, S
16. Boston & Montana	Montana	150,000	\$ 750,000	25	6.00	May 1899	10,775,000	G, C, S
17. Breese	Colorado	200,000	5,000,000	25	0.5	June 1899	50,000	L
18. Bullion Rock and Champion	Utah	100,000	1,000,000	10	10	June 1899	2,78,000	G, S
19. Barker H. H. and Sullivan	Idaho	300,000	3,000,000	10	0.7	May 1899	1,000,000	S, L
20. Carlisle	British Col.	40,000	600,000	1	0.1	Feb 1899	248,065	G
21. Calumet & Hecla	Michigan	10,000	2,500,000	25	20.00	June 1899	62,850,000	C
22. Centennial Eureka	Utah	80,000	1,500,000	50	50	June 1899	2,120,000	S, L
23. Central Lead	Missouri	10,000	1,000,000	100	50	June 1899	112,000	L
24. Charleston	S. Carolina	10,000	1,000,000	100	2.00	June 1899	200,000	G
25. Central Smelting	Montana	100,000	1,000,000	10	1.00	Jan 1899	1,945,000	G, S, C
26. Consolidated Tiger and Porcupine	Utah	1,000,000	1,000,000	1	0.2	Dec 1898	20,000	G, S
27. Central Lead	Colorado	1,000,000	1,000,000	1	0.1	Dec 1898	54,000	G
28. Crowned King	Arizona	400,000	6,000,000	10	0.2	Dec 1898	24,000	G, S, L
29. De Lamar	Idaho	4,000	2,000,000	5	12	May 1899	2,310,000	G, S
30. Deer Trail No 2	Washington	1,000,000	1,000,000	1	0.025	June 1899	32,700	G
31. Doe Run	Missouri	5,000	500,000	100	50	June 1899	75,000	L
32. Empire State	Idaho	75,000	750,000	10	20	July 1899	185,38	G, S
33. Empire State	Colorado	1,000,000	1,000,000	1	0.1	May 1899	10,000	G, S
34. Empire State	Wyoming	1,000,000	1,000,000	1	0.05	Mar 1899	6,000	G, S, L
35. Empire State	Colorado	1,200,000	1,200,000	1	0.1	May 1899	34,000	G
36. Empire State	Ontario, Canada	100,000	100,000	1	0.1	July 1899	41,000	G
37. Gold Coin of Victor	Colorado	1,000,000	1,000,000	1	0.1	June 1899	10,000	G
38. Gold King	Colorado	1,000,000	1,000,000	1	0.2	May 1899	50,000	G
39. Golden Cross	Colorado	200,000	1,000,000	5	0.5	June 1899	198,500	G
40. Grand Central	Utah	230,000	250,000	1	15	June 1899	631,250	G, S, C, L
41. Green	California	20,000	1,000,000	50	25	June 1899	12,500	G
42. Green Valley Exploration	California	50,000	100,000	2	25	July 1899	12,500	G
43. Helena and Idaho	Idaho	500,000	2,500,000	5	25	June 1899	550,000	S, L
44. Highland	S. Dakota	100,000	10,000,000	100	20	July 1899	8,924,718	G
45. Holy Terror	S. Dakota	300,000	300,000	1	0.1	Mar 1899	122,000	G
46. Homestake	S. Dakota	1,500,000	12,500,000	100	50	June 1899	7,658,250	G
47. Horn Silver	Utah	400,000	10,000,000	25	0.5	July 1899	6,270,000	S, L
48. Idaho	British Col.	500,000	500,000	1	0.5	Jan 1899	202,000	G
49. Isabella	Colorado	2,250,000	2,250,000	1	0.2	June 1899	448,500	G
50. Jack Pot	Colorado	1,000,000	1,000,000	1	0.21	Mar 1899	25,000	G
51. Jackson	California	5,000,000	3,000,000	10	10	April 1899	50,700	G
52. Lake Superior Iron	Michigan	84,000	2,100,000	25	1.00	Feb 1899	7,000,000	L
53. Idaho	Colorado	1,000,000	1,000,000	1	0.5	July 1899	1,300,000	G
54. Idaho	Colorado	500,000	500,000	1	0.2	June 1899	140,000	G
55. Idaho	Montana	600,000	3,200,000	5	12	Apr 1899	2,997,557	G, S
56. Idaho Ore Purchasing	Montana	40,000	1,000,000	25	1.00	July 1899	1,200,000	G
57. Idaho Ore	California	2,400	240,000	100	2.50	July 1899	7,200,000	G
58. Idaho	Utah	200,000	5,000,000	25	12.5	Jan 1899	1,500,000	G
59. Idaho	Utah	400,000	10,000,000	25	20	July 1899	1,400,000	G, S, C, L
60. Idaho	California	2,000,000	2,000,000	1	20	June 1899	120,000	G
61. Idaho	Colorado	300,000	300,000	1	0.1	Dec 1898	12,500	G
62. Idaho	Montana	400,000	2,000,000	5	0.5	Feb 1899	480,000	G
63. Idaho	California	20,000	100,000	5	30	May 1899	6,000	G
64. New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	June 1899	1,600,000	S, G
65. Napa	California	100,000	700,000	7	20	Jul 1899	1,100,000	G
66. New Idria Quicksilver	California	100,000	500,000	5	20	July 1899	140,000	G
67. North Star	California	200,000	2,000,000	10	25	Apr 1899	550,000	G
68. Oregon Empire	California	60,000	5,000,000	100	1.00	May 1899	500,000	G
69. Orestal	Michigan	60,000	1,250,000	25	3.00	June 1899	2,301,500	C
70. Parrot	Montana	230,000	2,300,000	10	1.50	May 1899	2,600,898	G
71. Pennsylvania Consolidated	California	51,500	5,150,000	10	20	July 1899	84,975	G
72. Pioneer	California	100,000	1,000,000	10	12.5	Mar 1899	62,500	G
73. Portland	Colorado	8,000,000	3,000,000	1	0.2	June 1899	2,107,050	G, S
74. Plumbago	California	300,000	300,000	1	15	Jan 1899	45,000	G
75. Quicksilver Pref.	California	43,000	4,300,000	1.0	50	May 1899	1,845,411	G
76. Quicksilver Consolidated	California	57,000	5,700,000	100	40	July 1899	815,867	G
77. Quincy	Michigan	100,000	2,500,000	25	5.00	August 1899	11,070,000	C
78. Republic Consolidated	Washington	3,000,000	3,000,000	1	0.1	June 1899	188,000	G
79. R. M. Carr	British Col.	1,000,000	1,000,000	1	0.1	April 1899	50,000	G
80. Royal Consolidated	British Col.	2,500,000	2,500,000	1	0.1	June 1899	1,050,000	G
81. Sacramento	Utah	1,000,000	5,000,000	5	0.05	July 1899	9,500	G
82. Small Hope Consolidated	Colorado	250,000	5,000,000	20	10	Feb 1899	3,325,000	S
83. South Swansea	Utah	150,000	150,000	1	0.5	June 1899	15,500	S, L
84. Standard	Idaho	600,000	500,000	1	0.3	Apr 1899	1,775,000	G, S
85. Standard Consolidated	California	200,000	20,000,000	100	10	May 1899	3,879,250	G, S
86. St. Joseph	Missouri	30,000	3,000,000	10	50	June 1899	2,850,700	S, L, G
87. Silver King	Utah	150,000	3,000,000	20	25	June 1899	2,127,000	S, L, G
88. Suggler	Colorado	1,000,000	1,000,000	1	0.1	June 1899	1,155,000	S, L, Z
89. Swansea	Utah	10,000	500,000	5	0.5	June 1899	169,500	S, L
90. Tamarack	Michigan	80,000	1,500,000	16	4.00	June 1899	5,900,000	C
91. Tumbay	Colorado	200,000	2,000,000	10	4.00	May 1899	730,000	G
92. Utah	Utah	100,000	1,000,000	10	0.2	Jan 1899	170,000	G
93. Vindicator Consolidated	Colorado	1,500,000	1,500,000	1	0.5	July 1899	25,770	G
94. War Eagle Consolidated	British Col.	2,000,000	1,000,000	1	0.15	June 1899	35,750	G
95. Wolverine	Michigan	80,000	2,500,000	25	1.50	Apr 1899	150,000	G
96. Yellow Aster	California	100,000	1,000,000	10	10	May 1899	203,789	G

A. Silver; G. Gold; L. Lead; O. Copper; Q. Quicksilver; I. Iron; Z. Zinc.

N. B.—Companies not listed paid nothing in the last twelve months.

*Paid since consolidation, \$63,000; Republic paid \$120,000 under old management.

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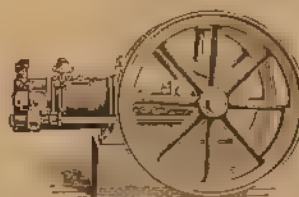
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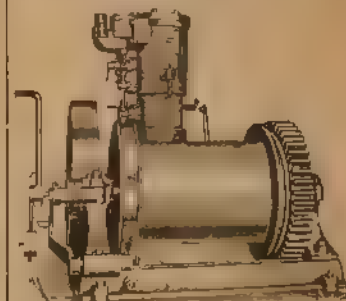
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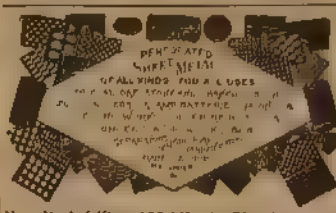


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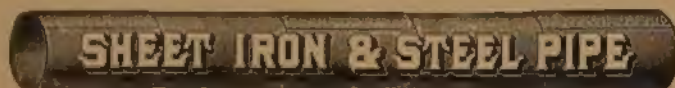
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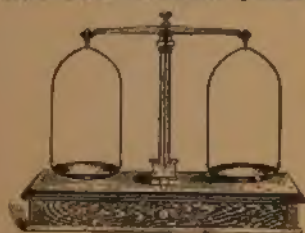
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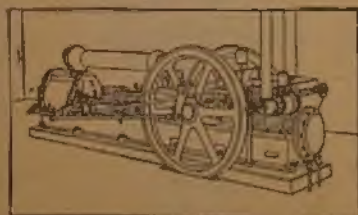


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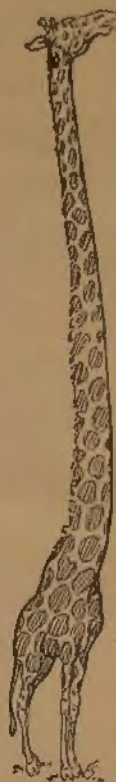
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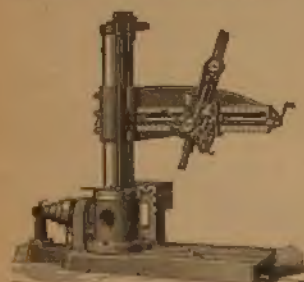
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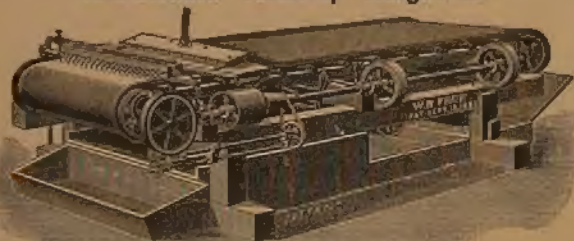
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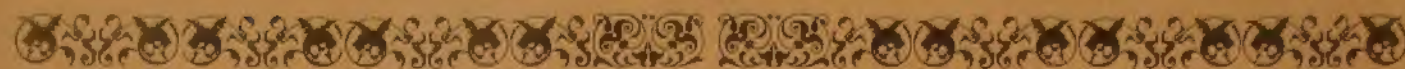
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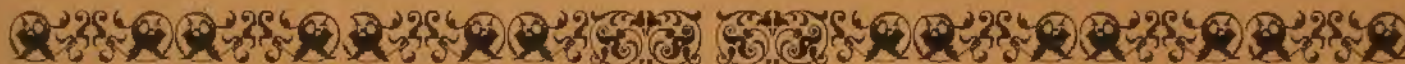
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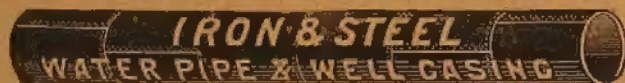
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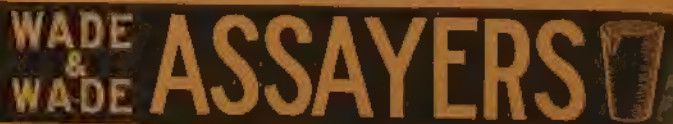
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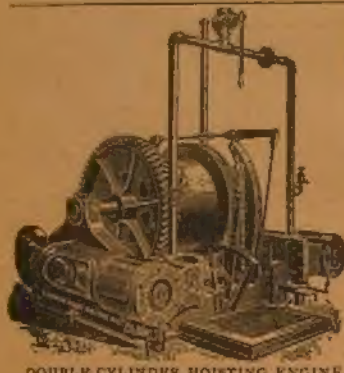
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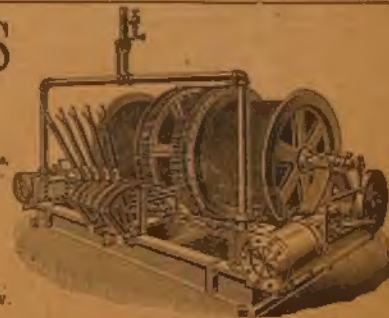
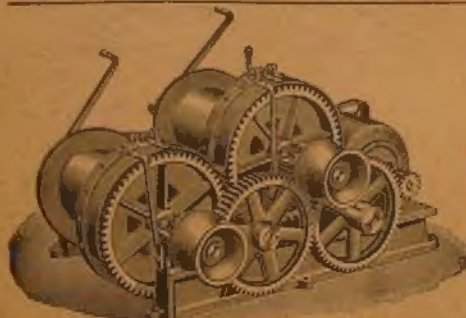
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